Sustaining Infrastructure and Natural Areas in Shoreview Parks

University of Minnesota, College of Food, Agricultural and Natural Resource Sciences: Problem Solving for Environmental Change. 2009

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Green- Landscaping

Inventory and Assessment

• In person visual inventory survey of various park features was taken over the course of October to determine condition of natural vegetation in Shoreview parks.
• Case studies and University of Minnesota professionals were consulted to find Shoreview appropriate stress tolerant turf grasses and native vegetation.
• Park maintenance protocols for several neighboring communities were collected and compared to Shoreview park maintenance protocol.

Park	Percent Green
Bobby Theisen	90.22
Bucher	94.2
Lake Judy	95.68
McCullough	95.79
Ponds	94.71
Rice Creek	81.49
Shamrock	92.68
Commons	79.16
Sitzer	84.93
Wilson	86.14

	Bucher	Ponds	Lake Judy	McCullough	Sitzer	Shamrock	Wilson	Commons	Bobby Thiesen	Rice Creek Fields
Forest Assessment:										
Overstory:										
# tree species	7+	~5-7	7+	7+	~5-7	7+	~5-7	7+	7+	~3-5
Age of forest	Adult	Adult	Adult	Old	Adult	Adult	Adult	Adult	Adult	YOUNG
% dead wood	0-5	0-5	5	~5-10	~0-5	~0-5	~5	~11-20	~5-10	~0-5
Understory:										
Presence of invasive species	YES	NO	YES	YES	NO	YES	YES	YES	YES	NO
If yes, % abundance	1		5	50		2	~10	5	~15	
Presence of Poison Ivy/ Poison Oak	NO	NO	YES	NO	NO	NO	NO	NO	YES	NO
Thickness of understory	AVERAGE	THIN	AVERAGE	THICK	Thin	THIN	AVERAGE	Thick	Thick	THIN
Ladscaping Assessment:										
Native plant buffer strips surrounding bodies of water	YES	YES	YES	YES	N/A	YES	YES	YES	YES	N/A
If yes, what is the width		~10-15	~20	~5-15		~15-20	~15-20ft	15ft	~10-15ft	
Native plant buffer along roads, highways	NO	YES	NO	NO	NO	NO	NO	NO	NO	NO
If yes, what is the width		~20								
Native plant buffer surrounding parking lots	NO	N/A	N/A	NO	NO	NO	NO	NO	NO	YES
If yes, what is the width										1/10 mile

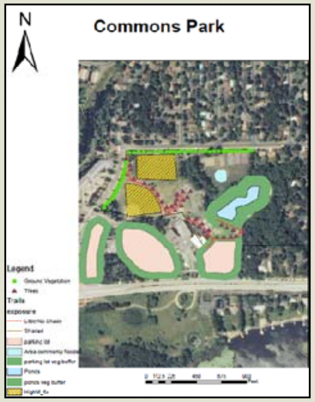
Findings

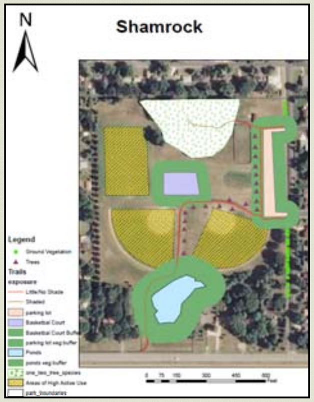
• Adequate buffer strips found around all bodies of water.
• Very few places with buffer strips surrounding parking lots and roads.
• Forest species diversity found to be adequate throughout the park system, with a few crucial areas of low diversity.
• Invasive species are present in many parks, but only a major problem in parts of McCullough, and Commons Parks.
• Planting of tolerant plant species is cost effective and ecologically beneficial.
• Shoreview maintenance protocol is lagging behind nearby communities in some aspects, but there is chance to become pioneer in other areas of park maintenance.

Visions Statement

"In order to maintain or enhance the aesthetic values and services provided by its environment, the city of Shoreview will promote sustainable development and practices for the preservation, design and maintenance of its natural and constructed surroundings. Developments and practices should promote community well-being while protecting and restoring the natural environment that people, economies, and ecological systems depend on."

Hotspots Maps





Recommendations

Green

• Plant buffer strips swales of native perennial plants around parking lots and roads.
• Use sustainable landscaping practices to minimize ecological impact and reduce expenditures.
• Use sustainable turf grasses and maintenance practices on playing fields.
• Establish park specific maintenance protocol to conform to unique park characteristics.

Gray

• Eventually construct pervious asphalt strips on the perimeter of parking lots in all parks. Begin with Rice Creek and Commons.
• Replace unnecessary paved trails with crushed limestone.
• Increase tree plantings along trails throughout park system.
• Evaluate options for future of Ponds Park.

Gray- Infrastructure

Inventory and Assessment

• In person visual inventory survey of various park features was taken over the course of October to assess condition, shade levels, and impact on natural surroundings for gray infrastructure in parks.
• Case studies on pervious pavements effectiveness and cost comparisons were reviewed.
• Consulted Bonestroo Inc. and secondary sources for pervious surface information.
• Consulted Shoreview officials for specific information on gray infrastructure and maintenance.

Park	Percent Gray
Bobby Theisen	9.78
Bucher	5.8
Lake Judy	4.32
McCullough	4.21
Ponds	5.29
Rice Creek	18.51
Shamrock	7.32
Commons	20.84
Sitzer	15.07
Wilson	13.86

	Bucher	Ponds	Lake Judy	McCullough	Sitzer	Shamrock	Wilson	Commons	Bobby Thiesen	Rice Creek Fields
Trail Assessment:										
Physical condition of trail	AVERAGE	AVERAGE	AVERAGE	AVERAGE	GOOD	AVERAGE	AVERAGE	GOOD	GOOD	AVERAGE
Shade on Trail	LOW	LOW	MEDIUM	HIGH	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW
Proximity to body of water	Near	Near	NEAR	NEAR	FAR	NEAR	NEAR	NEAR	NEAR	FAR
If part of trail is near, how much?	10%	20%	~20-30%	5%		~300-500ft	~10%	5%	~10%	
Distance between trail edge and vegetation (feet)	~3-4	~1-2	~2-3	~2	4+	~2-3	4+	~3-4	~3-4	~2-3
Parking Lot Assessment										
Shade on parking lot	LOW	NO Pking Lot	No Pking Lot	LOW	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	LOW
presence of stormwater retention pond	YES	YES	YES	YES	NO	YES	YES	YES	YES	NO

Findings

• Rice Creek Fields and Commons Park were found to have the highest percentage of gray land cover.
• Physical condition of trails was rated from average to good for the whole park system.
• Shading on gray infrastructure was found to be medium to low in all parks except McCullough. However, southern half of McCullough has low shading.
• Shade can significantly increase lifespan of asphalt.
• No pervious pavement is currently installed in Shoreview parks
• Some parks are more suited to pervious surfaces.
• Pervious surface is expensive compared to impervious surface so identifying critical areas is important.
• Pervious asphalt and concrete are impractical for trails.